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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/534,812	03/24/2000	Shunpei Yamazaki	SEL 169	2789

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EXAMINER

NGUYEN, KEVIN M

ART UNIT	PAPER NUMBER
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2674

DATE MAILED: 12/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/534,812	Applicant(s) YAMAZAKI ET AL.	
	Examiner Kevin M. Nguyen	Art Unit 2674	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) See Continuation Sheet is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) See Continuation Sheet is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>02/04/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

Continuation of Disposition of Claims: Claims pending in the application are 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 49, 51, 53, 55-79, 84-91, 96-105 .

Continuation of Disposition of Claims: Claims rejected are 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 49, 51, 53, 55-79, 84-91, 96-105 .

DETAILED ACTION

This office action is made in response to applicant's argument filed on 9/08/2005. Applicant's arguments, see pages 18-20, with respect to the rejections of claims 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 49, 51, 53, 55-79, 84-91, 96-105 under the statutory basis for the previous rejection have been fully considered and are not persuasive. Therefore, the rejection has been maintained.

1. It is noted that the applicant's election filed on 3/4/2002 without traverse of species II, as illustrated in figure 22 and species VII as illustrated in figure 27 that draw to claims 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 49, 51, 53, 55-74 (previously present), and draw to claims 75-79, 84-91, 96-105 (newly added).

However, the examiner does believe that new claims 80-83, 92-95, 106, 107 are not found in species II and species VII.

Therefore, previous claims 31-48, and new claims 80-83, 92-95, 106, 107 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected species I, III-VI, VIII-XV.

2. This application contains claims 31-48, 80-83, 92-95, 106, 107 drawn to an invention nonelected without traverse filed on 3/4/2002. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Applicants elected species II and species VII draw to claims 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 49, 51, 53, 55-74, and claims 75-79, 84-91, 96-105 are entered for examination. An action based on the previously election and RCE follows.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 49, 51, 53, 55-74 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims of U.S. Patent No. 6,753,854. Although the conflicting claims are not identical, they are not patentably distinct from each other because it would have been obvious to combine the claimed limitation "time gradation" or "time ratio gray scale" and the claimed limitation "forming an image for one frame comprising 2^{m-n} subframe" (col. 34, lines 24-28 of claim 1) of the Koyama's '854 with Nakai et al and Sharp et al at the paragraphs 7-19 below.

5. Claims 75-79, 84-91, 96-105 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims of U.S. Patent No. 6,590,581 in view of claims of U.S. Patent No. 6,753,854. Although the conflicting claims are not identical, they are not patentably distinct from each other because it would have been obvious to combine the claimed limitations "a D/A converter circuit for

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converting said n-bit digital video data into analog video data, and for outputting said analog video data to said source driver" (col. 34, lines 5-7 of claim 1) of Koyama's '581 and the claimed limitation "time gradation" or "time ratio gray scale" with the claimed limitation "forming an image for one frame comprising 2^{m-n} subframe" (col. 34, lines 24-28 of claim 1) of Koyama's '854.

6. Claims 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 49, 51, 53, 55-74 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of Koyama (US 6,753,854) in view of Nakai et al (previously cited).

7. As to claims 1, 57, 58, Koyama et al teach an active matrix liquid crystal display device TFT-LCD associated with a method, the device comprising:

A gate driver, a source driver, an opposing substrate and electrode (claim 1), a gray-level control circuit (claim 1) controls m-bit input to a n-bit output, as satisfying the condition (m-n) bit as information for time ratio gray scale, and $m > n$ (claim 1). Koyama et al further teach the display device performs voltage gradation display and time gradation display at the same time (claim 1).

Koyama et al teach all of the claimed limitations except for "optically compensated mode (OCB mode).

However, Nakai et al teach an OCB mode liquid crystal may also use arbitrary, and any type to LCD (col. 16, line 65 through col. 17, line 9).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to replace Koyama's liquid crystal molecules with an OCB mode liquid

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crystal, in view of the teaching in the Nakai's reference, because this would improve the quality of the image being displayed, while saving power consumption (col. 13, lines 1-6 of Nakai et al).

8. As to claims 3, 5, Koyama et al teach an active matrix liquid crystal display device TFT-LCD associated with a method, the device comprising:

A gate driver, a source driver, an opposing substrate and electrode (claim 1), a gray-level control circuit (claim 1) controls m-bit input to a n-bit output, as satisfying the condition (m-n) bit as information for time ratio gray scale, and $m > n$ (claim 1). Koyama et al further teach an image for one-frame is formed by displaying 2^{m-n} pieces of subframes by the n-bit digital data (claim 1).

Koyama et al teach all of the claimed limitations except for "optically compensated mode (OCB mode).

However, Nakai et al teach an OCB mode liquid crystal may also use arbitrary, and any type to LCD (col. 16, line 65 through col. 17, line 9).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to replace Koyama's liquid crystal molecules with an OCB mode liquid crystal, in view of the teaching in the Nakai's reference, because this would improve the quality of the image being displayed, while saving power consumption (col. 13, lines 1-6 of Nakai et al).

9. As to claims 7, 9, 11, 13, 15, 17, Koyama et al '854 teach the positive number m is 10 and 12 and the positive number n is 2 and 4 because $m > n$ and (m and n are integer and even numbers, claim 1).

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10. As to claims 59-61, 63, 64, Koyama et al teach a TFT-LCD panel (201-1-4, fig. 3) which includes a liquid crystal cell C_{LC} (claim 1) on the substrate coupling to an opposing common terminal (claim 1).

11. As to claims 49, 65, Koyama et al teach electronic imaging applications include a laptop computer (claim 9).

12. As to claims 69-74, Koyama et al teach the display device performs voltage gradation display and time gradation display at the same time (claim 1) that defined "a display gray scale level is obtained by totaling gray scale voltage levels in sub-frame terms of one frame and then averaging totaled gray scale voltage levels by said time ratio gray scale."

13. Claims 55, 56, 62, 68, 72 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of Koyama et al (US 6,753,854) in view of Sharp et al (US 6,049,367).

14. As to claim 55, Koyama et al '854 teach an active matrix liquid crystal display device TFT-LCD associated with a method, the device comprising:

A gate driver, a source driver, an opposing substrate and electrode (claim 1), a gray-level control circuit (claim 1) controls m-bit input to a n-bit output, as satisfying the condition (m-n) bit as information for time ratio gray scale, and $m > n$ (claim 1). Koyama et al further teach the display device performs voltage gradation display and time gradation display at the same time (claim 1).

Koyama et al '854 teach all of the claimed limitations except for "a pi-cell structure."

However, Sharp et al teach a pi-cell structure (col. 30, line 40).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to replace Koyama's LCD molecules with the pi-cell structure, in view of the teaching in the Sharp's reference because this would provide reduced flicker, increase brightness as taught by Sharp et al (col. 27, lines 4-10).

15. As to claim 56, Sharp et al teaches OCB mode (col. 30, line 36).

16. As to claims 19, 21, 23, 25, 27 and 29, Koyama et al '854 teach a rear projector and a front projector comprise three liquid crystal display devices (claims 3 and 4).

17. As to claim 62, Koyama et al '854 teach a TFT-LCD panel (claim 1) which includes a liquid crystal cell C_{LC} (claim 1) on the substrate coupling to an opposing common terminal (claim 1).

18. As to claims 49, 51, 53, 65-68, Koyama et al '854 teach electronic imaging applications include a laptop computer (claim 9).

Response to Arguments

19. Applicant's arguments filed 09/08/2005 have been fully considered but they are not persuasive.

20. Applicant requests to withdraw the objection of non-elected claims 31-48, 80-83, 92-95, 106 and 107, in page 18. In response, the Examiner respectfully disagrees. As stated *supra* with respect to claims 31-48, 80-83, 92-95, 106 and 107. It is noted that the applicant's election filed on 3/4/2002 without traverse of species II, as illustrated in Figure 22 and species VII as illustrated in Figure 27 that draw to claims 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 49, 51, 53, 55-74 (previously present), and draw to

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claims 75-79, 84-91, 96-105 (newly added), these claims are found the elected species II and VII. However, the Examiner does believe that new claims 80-83, 92-95, 106, 107 are not found in species II and species VII. Therefore, previous claims 31-48, and new claims 80-83, 92-95, 106, 107 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected species I, III-VI, VIII-XV. This application contains claims 31-48, 80-83, 92-95, 106, 107 drawn to an invention nonelected without traverse filed on 3/4/2002. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01. Applicant's election without traverse of species II, as illustrated in Figure 22 and species VII as illustrated in Figure 27 that draw to claims 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 49, 51, 53, 55-79, 84-91, 96-105 in the reply filed on 3/4/2002 is acknowledged. Therefore, the requirement is still deemed proper and is therefore made FINAL.

21. Applicant argues that as recited in claim 75 "wherein the source driver has a circuit converting the digital video data to an analog video data," there is no double patenting by any of these rejected independent claims in page 19. In response, the Examiner respectfully disagrees. As stated *infra* with respect to claim 75, the Examiner shows in the table below applied to the current claim 75 with claim 1 of the at least Koyama et al. 6,590,581 are rejected double patenting:

Current present application of claim 75	The at least Koyama et al. '581 claims in claim 1
the source driver has a circuit converting	a digital to analog (D/A) converter circuit

the digital video data to an analog video data	for converting said n-bit digital video data into analog video data, and for outputting said analog video data to said source driver
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A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. Therefore, there are double patenting claims between current claim 75 with the at least Koyama et al. '581 claims in claim 1.

22. Applicant argues that as recited in claims 77 and 79 "a circuit converting a first analog video data to a first digital video data; a circuit converting the first digital video data into a second digital data for a gradation display using voltage gray scale and time ratio gray scale; and circuit converting the second digital video data to a second analog video data," there is no double patenting by any of these rejected independent claims in page 19. In response, the Examiner respectfully disagrees. As stated *infra* with respect to claims 77 and 79. The Examiner shows in the table below applied to the current claims 77 and 79 are rejected double patenting in combination of claim 8 of Koyama et al. '581 with claim 1 of Kayama et al. 6,753,854:

Current present application of claims 77 and 79	Koyama et al. '581 claims in claim 8
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a circuit converting a first analog video data to a first digital video data, a circuit converting the first digital video data into a second digital data	an analog to digital (A/D) converter circuit for converting externally inputted analog video data into m-bit digital video data
a circuit converting the second digital video data to a second analog video data	a digital to analog (D/A) converter circuit for converting said n-bit digital video data into another analog video data
for a gradation display using voltage gray scale and time ratio gray scale	"($2^m - (2^{m-n} - 1)$) display gradation are obtained" in combination double patenting of claim 1 of Kayama et al. '854 recited: "wherein the display device performs voltage gradation display and time gradation display at the same time"

A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. Therefore, there are double patenting claims between current claims 77 and 79 in combination of Koyama et al. '581 claims in claim 8 with Kayama et al. '854 claims in claim 1.

23. Applicant argues that as recited in claim 55 "wherein a m bit digital video data inputted to the digital video data time ratio gray scale processing circuit is converted into

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n bit digital video data for voltage gray scale while (m-n) bit data of the m bit digital video data is used for time ratio gray scale,” there is no double patenting by any of these rejected independent claims in page 19. In response, the Examiner respectfully disagrees. As stated *infra* with respect to claim 55. The Examiner shows in the table below applied to the current claim 55 with claim 1 of the at least Koyama et al. ‘854 claims are rejected double patenting:

Current present application of claim 55	Koyama et al. ‘854 claims in claim 1
wherein a m bit digital video data inputted to the digital video data time ratio gray scale processing circuit is converted into n bit digital video data for voltage gray scale while (m-n) bit data of the m bit digital video data is used for time ratio gray scale	a circuit for converting externally inputted m-bit digital video data in 2^{m-n} pieces of n-bit digital video data, wherein the display device performs voltage gradation display and time gradation display at the same time

A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. Therefore, there are double patenting claims between current present claim 55 with Koyama et al. ‘854 claims in claim 1.

For these reasons, the rejections based on Koyama et al. ‘581 and Koyama et al. ‘854 are maintained.

Conclusion

24. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


25. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M. Nguyen whose telephone number is 571-272-7697. The examiner can normally be reached on MON-THU from 9:00-6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick N. Edouard can be reached on 571-272-7603. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the Patent Application Information Retrieval system, see <http://portal.uspto.gov/external/portal/pair>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kevin M. Nguyen
Patent Examiner
Art Unit 2674

KMN
February 1st, 2005



ERICK N. EDOUARD
JURY PATENT EXAMINER